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ABSTRACT

The paper describes the reasons for developing a new instrument to measure adaptive behavior of mentally retarded residents at Glenwood State Hospital-School and recounts the processes involved in constructing the new scale. Among complaints about the American Association on Mental Deficiency Adaptive Behavior Scale (ABS) are its inappropriateness with very low functioning persons and item arrangement and scoring. A review of specific items was carried out, and a factor analysis was performed using data gathered from administering the ABS to 200 redidents. The factor analysis was designed to determine the best arrangement of the items into domains. Results suggested that the six factors could be better conceptualized in two broad categories, first, those having to do with general abilities or behaviors (cognitive and communication skills and social responsiveness), and second, those relevant to specific behaviors (basic self-help skills, self-care skills, and community living skills). Tables listing adaptive and maladaptive behavior factor items and the percent of variance accounted for by each conclude the paper. (CL)

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THE GLENWOOD ASSESSMENT OF BEHAVIOR OF THE MENTALLY RETARDED

A WELL-FACTORED SCALE OF ADAPTIVE BEHAVIOR

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The impetus for this exercise in scale construction was a generally expressed dissatisfaction with the AAMD Adaptive Behavior Scale (ABS) at Glenwood State Hospital-School (GSHS). The ABS has been used at GSHS since 1976 as the standard tool for the annual review of a resident's adaptive behavior and as a guide for planning the behavioral treatment of the resident. The complaints about the ABS were varied, ranging from the objection that it is not appropriate for very low functioning residents who more and more make up the bulk of the population at residential institutions, to reservations about particular items, the arrangement of items, and the scoring of the items.

The initial response to these complaints was to suggest no more than a minimal rearrangment of the items of the ABS, to make the "domains" more consistent with the factors found by Nihira (1978) in his study of Part One of the ABS. As consideration of such a rearrangment progressed, however, it became obvious that revisions of the items themselves would also be necessary to have a really satisfactory scale. Thus began a long process of going through the ABS item by item and making revisions and additions or deletions as necessary. This process of revision involved extensive discussions with the psychology staff, other professional staff, and direct care staff on what items were needed and how they should be written. In the end almost all the items were different from those used in the ABS.

Two general changes in the items were also made, in addition to the change in their specific content. First, all the items were written in positive terms so that there would no longer be items that were scored by subtracting the number of subitems checked from the total possible as on the ABS. These items on the ABS, it was felt, caused confusion and uncertainty as to scoring.

Second, on those items that involved several non-hierarchial subitems, the rater was given the additional flexibility (by providing a 0-1-2 scoring), of saying that the behavior occurred sometimes rather than forcing a simple yes-no rating.

In the process of accomplishing this review of specific items a tentative rearrangement of the items into sections or domains in conformity with the Nihira (1978) factors was also made, but this was considered only temporary until a factor analysis of the new scale could be made. Data for such a factor anlaysis was gathered by administering the scale to 200 of the residents here at GSHS. The 200 residents were selected randomly within each living unit. That is, from each of the 49 living units, a quarter of the residents (usually 4) were randomly selected. Sampling from each living unit insured that the sample was representative of the population at GSHS. One resident from each unit was rated by two different raters for purposes of an item reliability analysis.

The reliability analysis was carried out by using a program provided by Dominic Cichetti (Cichetti, Aivano and Vitale, 1976, 1977). The statistic used was the intraclass correlation between the two raters across the 49 reliability ratings. The results of this analysis indicated that all but seven of the 63 items of the adaptive behavior section of the new scale had "excellent reliability" (had intraclass correlations (r_I) of .75 or greater, ef. Cichetti and Sparrow, 1981). Four of the remaining items had good reliability (r_I=.60-.74), two had fair reliability (r_I=.40-59), and one had poor reliability (r_I<.40). On the other hand, of the 30 maladaptive behavior items, only five had excellent reliability, 8 had good reliability, 10 had fair reliability, and 7 had poor reliability. In sum,

the maladaptive behavior section seemed to have considerably less reliability than the adaptive behavior section. This seems to be consistent with studies of the reliability of adaptive versus maladaptive items in other scales, in particular the AAMD ABS. (cf Fogelman, 1974.) Revisions have subsequently been made in the items showing low reliability, but no data on these revisions has as yet been collected.

To repeat, a factor analysis of the items in the scale was conducted in order to determine empirically the best arrangement of the items into "domains". Several analyses were done, but the basic analyses were an 8 factor oblique solution of the adaptive behavior section alone, and an 8 factor oblique solution of the entire scale, both the adaptive and maladaptive behavior sections. The items composition of the factors in these analyses are presented in Tables 1-3.

Insert Tables 1-3 about here

The items within each factor are arranged in order of their loading on the factor. Each item was assigned to only one factor, that factor on which it had the highest loading. As can be seen, some of the items had only weak loadings even on their strongest factors. These analyses were then used to determine the subscales. (Table 2 is given for the sake of completeness only; these factors were not used in the process of scale construction.)

Because the factor analyses were done to determine the best arrangement of items in the scale, no items were excluded from the scale because they did not load sufficiently highly on any of the factors. In other words, no factor loading cut-off was used. The particular items were assumed to be on the scale for reasons independent of the factor analysis, based on what was thought to be relevant and important to know about a resident in order to further his treatment. Most of the items had a clear loading on only one factor. For those items that had weak loadings on their strongest factor, some subjective shuffling of the items was allowed.

Some consideration in this subjective shuffling was given to the size of the "domains" into which the items were arranged. It was felt that they should be more or less equal, and that "domains" of only two or three items should be avoided. For this reason the eight factors of the factor analysis of the adaptive behavior section were reduced to six domains by combining factors III and IV (of table 1) into one domain, and distributing factor VIII, consisting of three items not clearly related to each other, among the remaining six domains. Likewise, the maladaptive behavior section was divided into three domains by combining factors III and IV of the maladaptive behavior factors (Table 3).

Finally, the labels for each domain were based on the general character of most of the items in it, especially the strongest items. For several of the factors there seemed to be one or two items that empirically loaded on this factor, but did not conceptually fit with the others. Again, rather than eliminate these items they were left in as part of the domain as an impetus for further research and possible reconceptualization of the domain. The

current version of the scale contains the domains as shown in Table 4. Another review of the specific items was carried out after and as a result of the factor analysis and reliability analysis, resulting in some further changes in some of the items.

Insert Table 4 about here

The only previous study to which this exercise is directly comparable is the Nihira (1978) study of part one of the ABS. The Nihira study is the only one that analyzes an adaptive behavior scale at the level of individual items. It, however, unlike the present study, excludes the profoundly retarded from its analyses, and does separate analyses for children, adolescents, and adults. Nevertheless, an examination of the factors Nihira found reveal some striking similarities between his study and the present one. Nihira chose to conceptualize the factors he found in terms of the three more general factors of 1) personal self-sufficiency, 2) community self-sufficiency, and 3) personal social responsiblity that had been found in earlier studies of the ABS. Nihira's general factor of personal self-sufficiency corresponds to our basic self-help skills factor. He found that this factor could be further subdivided into two or three factors, Neuromotor Development, Self-help Skills, and possibly also Sensory Development (i.e., vision and hearing). In our study the general factor was not differentiated into smaller factors. Likewise Nihira found his third general factor, Personal Social Responsiblity to be differentiated, at least among adults, into Self-direction and Socialization. For children and adolescents in Nihira's study, there was no differentiation between these two areas, and neither was there any such differentiation in our study for our corresponding factor of Social Responsiveness. Our study did, however, find a differentitation between very

basic general responsiveness to others and more complex social responsiveness. On the other hand, Nihira's second general factor was differentiated into four smaller factors, and here we agree with this differentiation. Both studies have cognitive skills and communication skills factors, and Nihira's Community Living Skills I and II corresponds to our Community Living Skills and Self-Care Skills factors, respectively.

As a result of the analyses of our data, however, we would like to suggest a different conceptualization of the factors. It seems to us that the six factors we have found can be better conceptualized in terms of two broad categories, those having to do with general abilities or behaviors that are relevant to any specific situation, and those having to do with specific behaviors that are relevant only to particular areas of behavior. In the first category belong Cognitive Skills, Communication Skills, and Social Responsiveness. These are skills that can be and are applied to any particular situation whether school, work or play. In the second category are the factors of Basic Self-help Skills, Self-care Skills and Community Living Skills. These are skills that are specific to particular aspects of adaptive behaviors, and can be looked at as differentiated in terms of the degree to which the general skills of the first category are required in the performance of the specific skills.

Basic self-help skills, for instance, require only the minimum of cognitive and communication skills, and the minimum of responsiveness to social demands. Self-care Skills require somewhat more responsiveness to social demands, and relatively more cognitive and communicative skills. Community living skills require the greatest degree of responsiveness and cognitive and communicative skills.

Hopefully, this conceptualization will be useful in improving treatment procedures for the mentally retarded. It is interesting to note at this point that fully 88% of the variance of part one of this scale is accounted for by the three factors making up the specific skills category. This is as it should be in a scale of adaptive behavior whose primary use is in the assessment of training needs in specific areas. The category of general skills covers those skills that are perhaps better assessed with the standard intelligence, educational and speech tests, and serve as predictors of performance on the more specific skills.

Much less can be said about the maladaptive part of the present scale. We are not aware of any similar factor analysis of the items of part two of the ABS, or of any other scale of maladaptive behavior for the mentally retarded. We have succeeded in grouping the range of maladaptive behavior found in the mentally retarded into three broad categories which it would seem would be able to be compared to and made conceptually continuous with the categories of maladaptive behavior found in scales for a more general population such as the MMPI or even more appropriately, the PIC (Personality Inventory for Children) which is also a rating scale.

Table I: Adaptive behavior factor items from analysis of adaptive behavior section alone with the percent of variance accounted for by each factor in parentheses. The loading on the factor is to the right of each item.

I.	Cognition (4%)		V.	Basic Self-Help (11%)		VIII.	(1%)
	Reading	95		Ambulation	97		Use of bus 40
	Writing	92		Body balance	97		Mouth skills 33
	Number manipulation	79		Wheelchair usage	95		Responsibility 32
	Telling Time	71		Limb Function	87		
	Time concepts	55		Drinking	63		
	Visual word recognition	54		Undressing	62		
	Number concepts	53		Toileting	59		
	Money handling	44		Self-care at toilet	59		
II.	Symbolic communication (4%)			Dressing	48		
	Sentences	76		Shoes	43		
	Word usage	75		Sense of direction	33		
	Speech	73		Use of table utensils	32		
	Conversation	73		Clearing dishes	28		
	Identification	60	VI.	Complex Self-help (76%)			
	Recognition of others	46		Bedmaking	64		
	Matching	46		Hairwashing	59		
	Ordering meals	41		Room Cleaning	55		
III.	General Responsiveness (1%)			Complex motor skills	52		
	Nonverbal expression	70		Hair combing	52		
	Perceptual processing	69		Shaving	51		
	Instruction comprehension	47		Washing	48		
	Simple motor skills	34		Toothbrushing	43		
IV.	Social Responsiveness (2%)			Bathing	37		
	Participation in groups	76		Household tasks	37		
	Attention, other directed	72		Clothing selection	31		
	Interaction with others	66		Personal hygiene	28		
	Attention, self-directed	64		Self-management of medication	26		
	Initiative	59	VII.	Community Living (2%)			
	Leisure Activity	54		Food preparation	59		
	Caring behavior	51		Budgeting	50		
	Attendance	37		Use of telephone	42		
	Job complexity	30		Purchasing	39		
				Table setting	38		
				Errands	38		
				Care of clothing	38		
				Task performance	30		
				Menstruation	18		

Table 2 - Adaptive behavior factor items from analysis of both adaptive and maladaptive sections combined with the percent of variance accounted for by each factor in parentheses.

I. Independent living skills (65%)	
Room cleaning	83
Care of clothing	81
Bedmaking	81
Sharing	75
Table setting	72
Errands	72
Task performance	71
Hair washing	70
Budgeting	68
Bathing	65
Household tasks	65
Job complexity	63
Combing	63
Responsibility	63
Cleaning dishes	61
Ordering meals	59
Food preparation	58
Personal hygiene	57
Caring behavior	55
Purchasing	55
Complex motor skills	54
Toothbrushing	52
Clothing selection	48
Attendance	48
Leisure activity	48
Use of table utensils	42
Menstuation	41
III. Cognitive skills (7%)	
Reading	92
Writing	86
Number manipulation	84
Telling time	78
Time concepts	66
Visual word recognition	63
Money handling	54
Use of telephone	53
II. Basic skills (2%)	
Undressing	87
Toileting	83
Self-care at toilet	73
Dressing	73
Drinking	71
Shoes	65
Washing	51
Washing	51
Use of buc	49
Simple motor skills	47
Instruction comprehension	43
Sense of direction	41
Mouth skills	30
IV. Responsiveness (3%)	
Interaction with others	54
Recognition of others	48
Attention, self-directed	48
Attention, other directed	47
Conversation	47
Participation in groups	45
Perceptual processing	42
Initiative	42
Word usage	42
Nonverbal expression	40
Sentences	40
Speech	40
Matching	39
Identification	34

Table 3 - Maladaptive behavior factor items from analysis of both adaptive and maladaptive sections combined with percent of variance accounted for by each factor in parentheses.

I. Violent behavior (2%)	
Physical violence	62
Property destruction	64
Self-abuse	62
Temper tantrums	58
Angry language directed to peers	54
Angry language directed to staff	54
Removes clothing	44
II. Nonconforming behavior (14%)	
Steals	74
Inconsiderate behavior	65
Disruptive behavior	62
Misbehaves in groups	55
Bosses others	52
Demands attention	46
Violates general regulations	46
Violates special regulations	43
Inappropriate manners	43
Teases others	42
Lies	41
Inappropriate sexual behavior	35
Does not follow instructions	35
III. Irrational behavior-nonverbal (4%)	
Self-stimulation	80
Hyperactivity	67
Inappropriate vocalizations	47
Emotional instability	40
Inappropriate oral behavior	40
Inappropriate object manipulation	35
Withdrawal	22
IV. Irrational behavior-verbal (3%)	
Hypochondriacal behavior	32
Feelings of persecution	45
Lack of reality testing	60

Table 4 - Domain labels of the Glenwood Assessment

Part One: Adaptive Behavior

I. Symbolic communication

II. Cognitive skills

III. Social Responsiveness

IV. Basic motor skills

V. Self-care skills

VI. Community living skills

Part Two: Maladaptive behavior

I. Violent behavior

II. Nonconforming behavior

III. Irrational behavior

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